Altering the career choice: Can we attract more women to vascular surgery?

Linda M. Harris, MD,[a] **Elliot L. Chaikof, MD,**[b] and **John F. Eidt, MD,**[c] *Buffalo, New York; Atlanta, Ga; and Little Rock, Ark*

Vascular surgery has relied upon the pool of general surgical residents for candidates for residency. This has significantly limited the pool of applicants. With the advent of new primary certificate training paradigms, we investigated factors that might alter the career choices for women medical students. A Web-based survey was conducted of third-year and fourth-year medical students at three university-affiliated programs. A total of 140 students completed the survey, which identified the third year of medical school as the primary year when students committed to a final career choice. Lifestyle issues were the primary deterrents, with long work hours and lack of time to see family negatively influencing students' interest in surgery. Eliminating the need for 5 years of general surgery and the opportunity for part-time training were cited as factors that would alter students' decisions to pursue vascular surgery. Ultimately, a positive rotation experience, lifestyle issues, and mentors impacted on final career decisions. To attract the best applicants to the field, we need to continue to be active in mentoring students and exploring alternative training paths and eventual career practices. (J Vasc Surg 2007;45:846-8.)

There is a growing concern that surgery and related surgical subspecialties may be failing to attract a large portion of the medical school class because of the poor track record of surgery to attract women, which now constitute an ever-increasing portion of medical students. Although this particular study focuses on concerns of current female medical students, these findings can likely be generalized to male medical students as well.

General surgery programs currently match with approximately 24% female residents, despite the fact that women comprise 50% of the average graduating. Because vascular surgery currently derives its applicants from the pool of general surgery residents, women occupy fewer than 20% of training positions in vascular surgery. With the recent approval of several new shortened vascular surgery training paradigms, the ability to attract women—and men—who would otherwise have not chosen surgery may be enhanced.

The objective of this study was to identify factors influencing career decisions of female medical students. These data may provide program directors and other leaders in the field with information that may influence alterations in the structure of training programs to attract the best and the brightest, regardless of gender, to vascular surgery.

From the State University of New York at Buffalo and Kaleida Health,[a] Emory University School of Medicine,[b] and University of Arkansas–Little Rock.[c]

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Correspondence: Linda M. Harris, MD, Kaleida Health/Millard Fillmore Hospital, Gates Circle, Buffalo, NY 14209 (e-mail: lharris@kaleidahealth.org).

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METHODS

A Web-based survey of third and fourth year women medical students was conducted at three university-affiliated medical schools with vascular residency training programs. The survey consisted of 30 multiple-choice questions, with five open-ended questions to allow for further comment. A cover letter was sent by e-mail with a link to the survey. The letter was resent to improve completion rates. The questionnaire was accessed by a link in the cover letter. Answers were directly downloaded into a statistical spreadsheet and transferred into Excel (Microsoft, Redmond, Wash) for analysis. Analysis was performed by descriptive statistics, and individual comments were evaluated.

RESULTS

A total of 140 students of a possible 361 completed the survey before the time of analysis. Upon entry to medical school, 64% of respondents had identified a field of interest within medicine as a potential career path; however, only 12.9% were committed to these disciplines during their first 2 years of training. An additional 53% selected a final career during third year clerkships, with 14% deciding during their final year of medical school. A full 20% remained undecided at the time of the survey.

Table I summarizes the declared fields of interest upon entry to medical school and those selected upon final commitment. An increase of 4% in general surgery and 2% in related surgical subspecialties was observed during the

Table I. Career choice of medical students

Field	*On entering*	*Now*
Family medicine	8%	9%
Internal medicine	8%	14%
Medical subspecialty	6%	14%
Pediatrics	13%	14%
Psychiatry	3%	5%
Obstetrics/gynecology	11%	9%
Surgery	4%	8%
Surgery subspecialty	9%	11%
Radiology	2%	4%
Other	7%	7%
Unsure/no answer	51%	14%

course of medical school. Before completing the questionnaire, 89% of students had completed their third-year mandatory general surgery rotation. Sixty-seven percent reported a positive experience, whereas 24% did not have a positive experience. Seventy-three percent thought the surgical rotation influenced their ultimate career decision. Almost all students (91%) stated that they enjoyed procedures.

Surprisingly, 79% of students had women role models in surgery, with 53% reporting that these role models were faculty, 59% residents, 12% fellows, and 41% having multiple women role models. Unfortunately, the woman role model was a positive influence for only 64.3% of respondents. The students considered the long work hours and inadequate time to see spouses or children by women role models to be negative influences.

Other comments cited lack of credit given to female residents when they "out-performed" male colleagues. Women students also stated that they were treated differently 32% of the time by male surgeons, 12% of the time by women surgeons, and 20% of the time by male physicians in other fields. Differential treatment was not always considered a negative factor, as some reported that they were treated "nicer, given more encouragement, or had lower expectations." Others, however, believed they were excluded from the "boys club" and not taught as much as the male students. Many students stated that it was assumed that they would not consider pursuing a surgical career because of gender.

When queried about factors that might deter from choosing surgical careers, family (72%) and lifestyle (80%) were considered primary obstacles. Lack of mentors was an issue for 29% of the women students. When asked whether they would have more strongly considered surgical training if alterations in training occurred, controlling lifestyle (61%) and eliminating the requirement of 5 years of general surgery before subspecialty training (61%) would have the most impact on career choice (Table II).

Only 28% of respondents were married, 16% were engaged, 59% were in a serious relationship, and 7% of students already had children. Financial consideration was not a major issue for women in choosing careers, with anticipated income considered a factor in 16%. However, 23% expected to be the primary provider for the family, with an additional 22% unsure whether they or their spouse would earn a greater amount.

Table II. Potential factors influencing career choice

Factor	*Yes*	*No*
Shorter training	42%	56%
Part-time training/childbearing time	57%	41%
Lifestyle controlled	61%	37%
Daycare on site	44%	54%
General surgery not required	61%	37%

Women did express concerns about health during training. The primary concern was being past the prime childbearing years (79%) and ability to have children (53%), with only 31% concerned about radiation exposure and 27% concerned about risk of exposure to infectious diseases.

When questioned about factors that altered their final career choice, 38% cited a positive rotation, 29% noted lifestyle, and 25% attributed career selection to mentors. Financial consideration and a negative experience on a rotation led 12% of respondents to alter their career choice, with other factors accounting for a change in additional 12%. Upon examination of those who ultimately chose surgery, 62% reported a positive rotation and 35% cited a mentor as one of the reasons for shifting to a surgical career.

DISCUSSION

Ultimately, family and lifestyle issues are the factors that have been the primary deterrents from surgical fields.[1,2] Lifestyle issues—whether real or perceived—were a major issue for respondents both during and after training.[3] Many comments focused on a physician's ability to both have a family and to spend sufficient time with them even after completion of training. Concerns during residency primarily focused on the ability to have children, work hours, and negative attitudes of colleagues towards women. Occasionally, direct discouragement was reported.

A limitation of this study is that the response rate was 39%. This is, however, in line with other similar surveys reporting response rates of 20% to 79% for various groups (students, residents, fellows, faculty).[4,5]

A 2002 study by the Issues Committee of the Association of Program Directors in Vascular Surgery found that approximately four of five medical students did not pursue a career in vascular surgery because of perceived poor lifestyle during or after residency.[4] Despite an increase in endovascular interventions, with a subsequent decrease in inpatient census and procedure time and a concomitant increase in income, the positive impact of these factors on work environment and lifestyle has not been conveyed to current medical students. Lifestyle issues will continue to be important for female students and have also become increasingly important for male students as both groups consider lifetime career choices.[6] More men from the Y generation are accepting increased family responsibility and

are seeking careers with more controllable lifestyles. In surgical specialties, this is manifested by a shift to residencies in plastic and colorectal surgery.

The current generation of faculty are primarily from the Baby Boom era (1946 to 1964) or earlier. This generation is known to value work, leadership, and believe in loyalty to hierarchy. Those from generation X (1965 to 1976) seek a more controlled lifestyle, with work being a means to achieve life goals rather than a goal in its own right. They have demanded increasingly flexible work hours[7] to allow time for social activities.[8] Current women pediatric surgeons admit when surveyed that they would like more time for nonprofessional activities (55%), their spouse (44%), and outside hobbies (35%).[5] Generation Y (1977+) seems to be even further along than Generation X, with family a significantly higher priority than career.

Students can be influenced towards surgical careers by a positive exposure to practicing surgeons.[9] Mentors observed skills, achievements, and directed recommendations to students have significantly impacted the choices of students on whether to pursue a career in surgery.[10] This finding was even more pervasive in women students than in their male colleagues. To attract both men and women to surgery and to vascular surgery, we need to continue to rethink the training paradigm and allow for a more flexible lifestyle when training is completed.

The 80-hour workweek has significantly increased the applicant pool to general surgery training programs. Shortening the total training time to subspecialization appears to be another mechanism that is likely to increase the applicant pool.

Promoting a more hospitable environment for childbearing during training may also enable additional high-quality students to consider surgical fields. The difficulty of starting a family during training remains a major issue in discouraging some women from pursuing the field. In a survey by Mayer et al,[11] 64% of male surgical graduating residents had a family at graduation versus only 15% of female surgical residents. The difference continued after graduation, with 95% of men and 40% of women having children. Obviously, a pregnant resident will have a need for increased time off compared with her male counterpart. The difficulty of accommodating a leave of absence may be accentuated in programs with a smaller complement of residents, thereby discouraging some women from pursuing vascular training.

Students need to observe that the lifestyle of a vascular surgeon allows time for spouse and children. We need to actively invite students to consider vascular surgery as a career. Taking an interest in the students' work and personal life may help to mentor potential future trainees.

CONCLUSION

Ultimately, if we are to attract the best and the brightest students, vascular surgery must continue to address the changing demands of a new generation with regards to lifestyle issues. We also need to aggressively mentor and invite students to be involved in our field rather than waiting for them to take the initiative. The new paradigms in training will likely open the door for many students who would previously not have considered a career in vascular surgery. To optimize our recruitment of these students, we need to carefully plan our mentorship of these students and minimize those factors that negatively influence a career in the care of patients with vascular diseases.

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